

Acoustic Igniter, Phase I

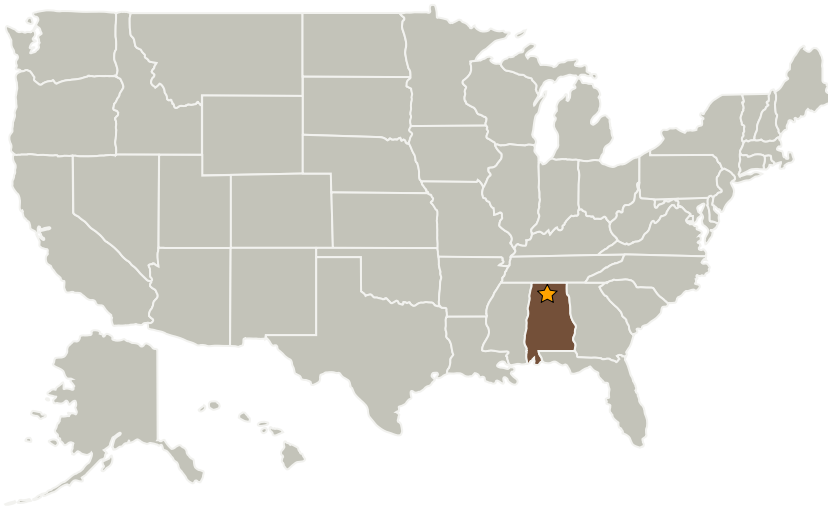
Completed Technology Project (2008 - 2008)



Project Introduction

An acoustic igniter eliminates the need to use electrical energy to drive spark systems to initiate combustion in liquid-propellant rockets. It does not involve the use of catalysts (which have a limited life), it does not exhibit typical wear and tear as seen in spark and catalytic igniters, and it is simple in design with no moving parts. Orion's proposed Acoustic Igniter is expected to offer a long-life, highly reliable ignition system that does not require high-voltage electrical connections. It is less complex to operate and simpler than a traditional ignition system. Orion's primary technical objective is to produce an acoustic igniter design that will ignite combustion of common liquid rocket fuel and oxidizer combinations such as gaseous oxygen and kerosene, and oxygen/methane. During Phase 1, we will analyze the operational issues that inhibit acoustic igniter performance. Based on these results, Orion will build a prototype unit, test it, and evaluate its performance. This work will be sufficiently broad and deep to establish a basis for the follow-on Phase 2 effort to refine the design and upgrade the technology level of the acoustic igniter.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Orion Propulsion, Inc.	Supporting Organization	Industry	Huntsville, Alabama



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Alabama

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
 - └ TX07.1 In-Situ Resource Utilization
 - └ TX07.1.3 Resource Processing for Production of Mission Consumables